



2021+ F150 BIG MOUTH Ram Air Intake Installation Guide



2021+ F150 BIG MOUTH Kit Contents

Please review this document before attempting installation.

You will need basic hand tools and about 2 hours of installation time.

Please review the table below and make sure you have received the kit contents.

Kit Contents (QUAD Kit)	Qty
M5 x 14mm Button Head Screw	12
Drill Templates (A+B+C+D)	4
M5 x 25mm Cap Screw	2
M3 x 60mm Cap Screw	1
AGS Simulator Spline Shaft "D"	1
AGS Simulator Spline Shaft "P"	1

Kit Contents (DUAL Kit)	Qty
M5 x 14mm Button Head Screw	8
Drill Templates (A+B)	2
M5 x 25mm Cap Screw	2
M3 x 60mm Cap Screw	1
AGS Simulator Spline Shaft "D"	1
AGS Simulator Spline Shaft "P"	1

AGS Simulator Overview

Please take the supplied AGS Simulator assembly out of the hardware bag and inspect it for the indicators outlined below:

- For 2021+ F150 models, the AGS Simulator assembly should have three ridges on the “back side”. If it does not, refrain from removing your bumper and contact support@velossatech.com immediately.
- Confirm that you have received a Driver Side (embossed with a “D”) and a Passenger Side (embossed with a “P”) bracket. Of the 2 holes available, use the hole furthest from the spline shaft for install (applies to both sides).



Three ridges on each bracket



Use furthest hole for install



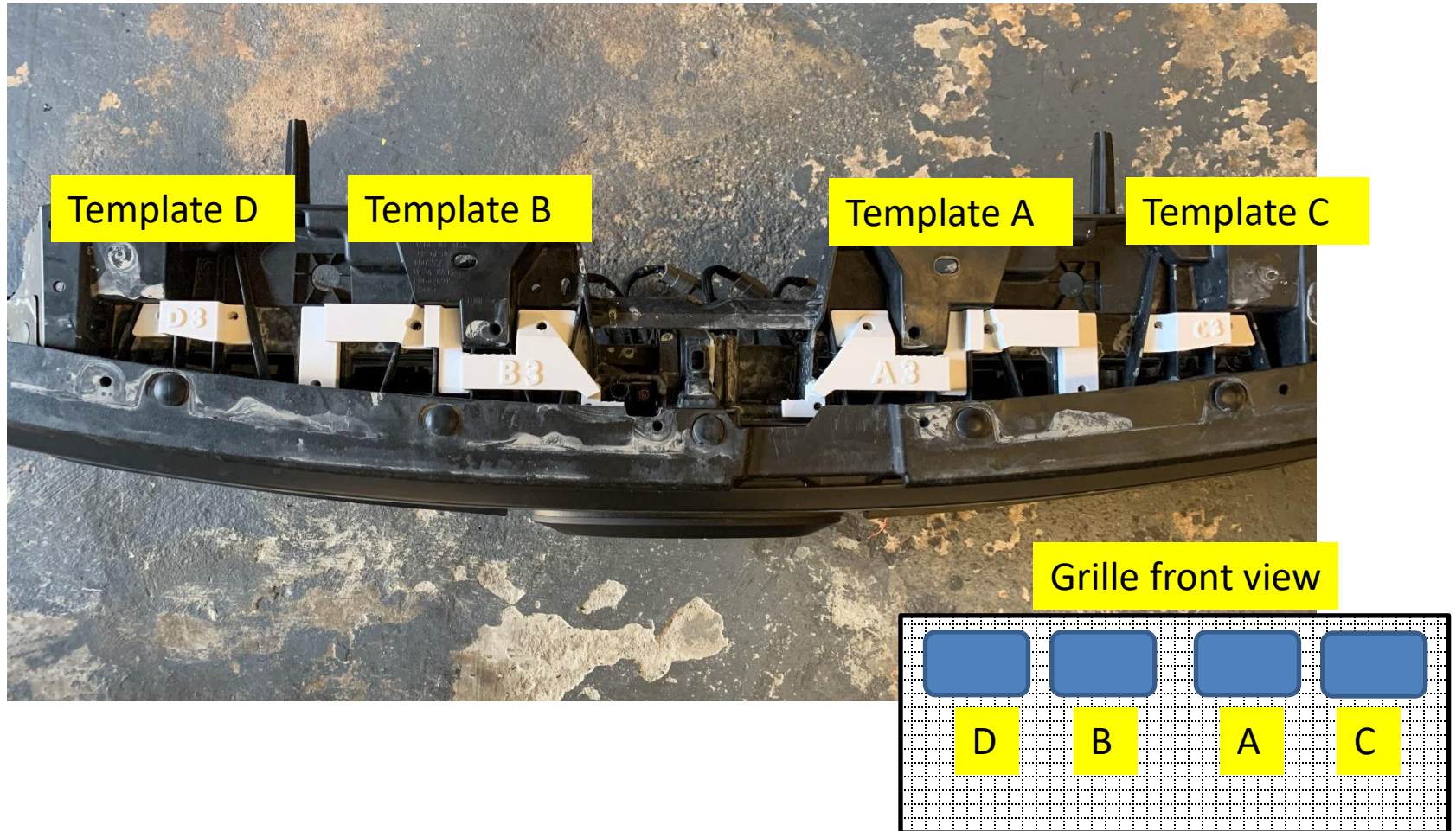
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Stock Components Removal

Use Google or online forums to search for best practices when removing the front bumper.

Cowl Templates

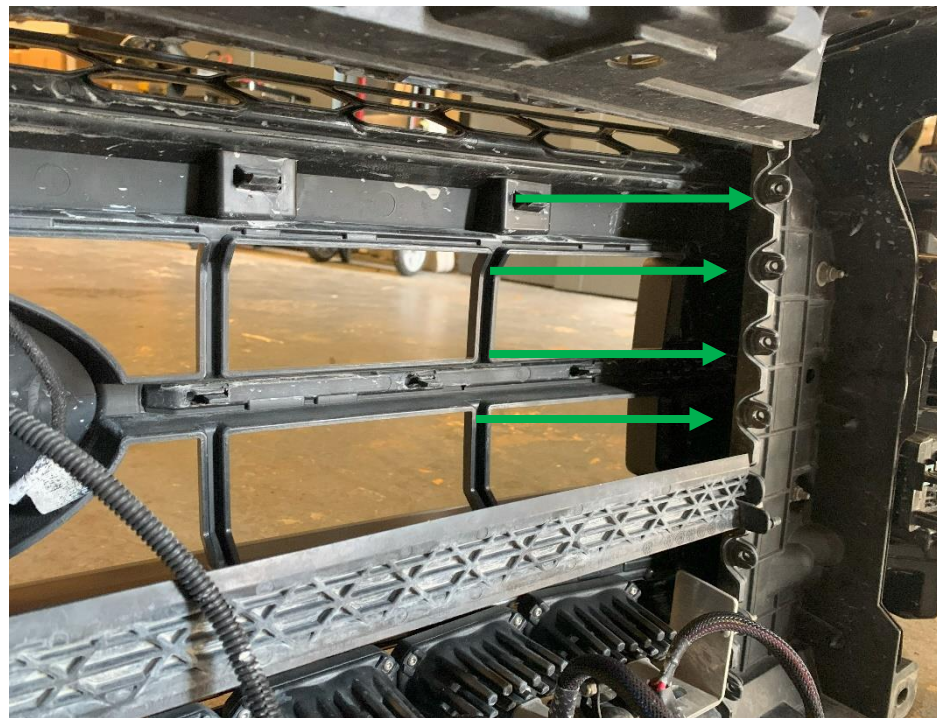
After removal of the grille/cowl assembly, you will need to use the supplied templates to drill $\frac{1}{4}$ " holes in the locations shown. (Dual kits only have two templates).





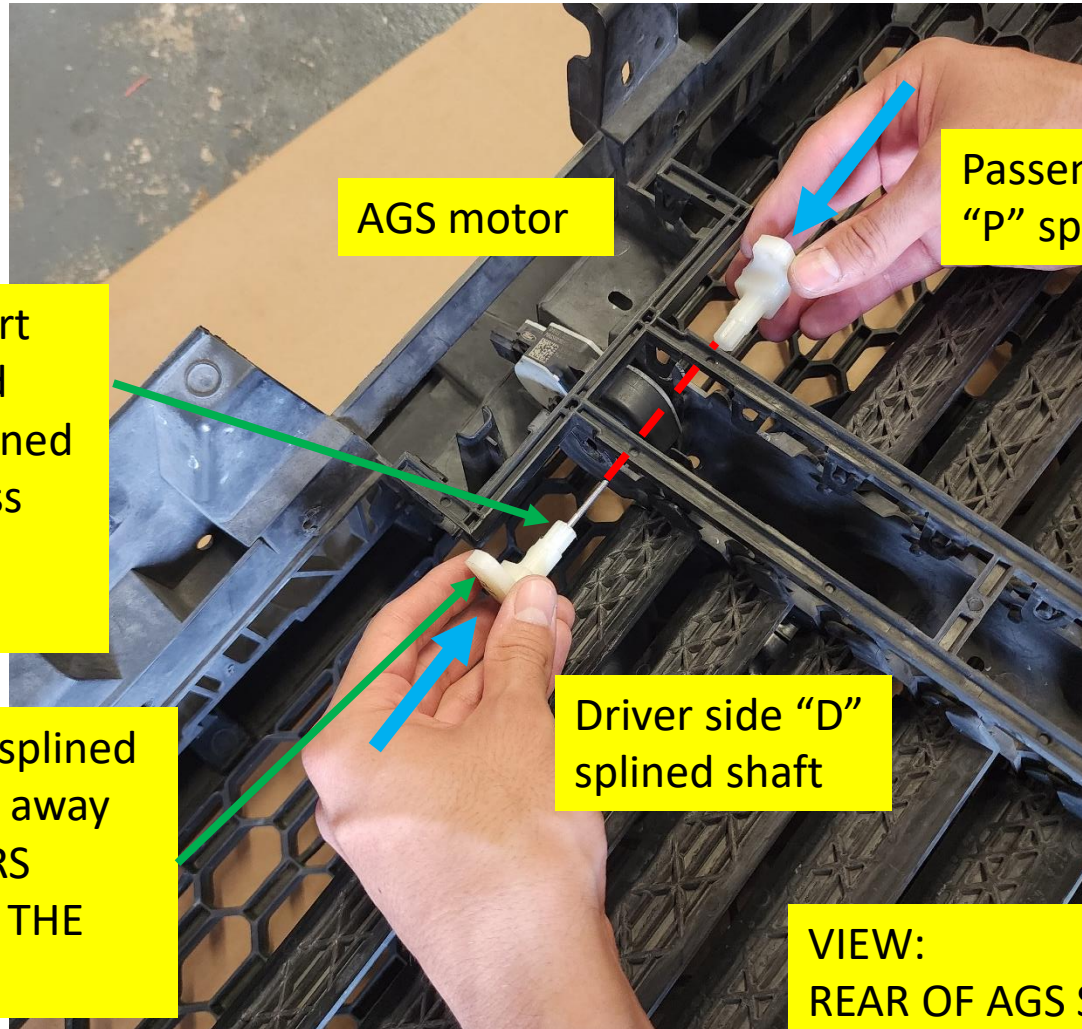
Stock Components Removal

Remove the top 4 AGS flaps to allow clearance for the BIG MOUTH intakes. You can flex these flaps at their center, and then bend them outward to unhook the engagement pegs. See below.



AGS Simulator

This assembly was engineered and tested to allow the AGS to continue to function, which will prevent a soft code from showing up on the dash for some 13th gen F150 models.



AGS motor

Passenger side
"P" splined shaft

60mm long M3 bolt, insert into the splined shaft and thread into the other splined shaft (prepared with brass insert) through the AGS motor, make a sandwich.

The 'ear' of the supplied splined shaft should be facing up away from the grille. BOTH EARS SHOULD BE POINTING IN THE SAME DIRECTION.

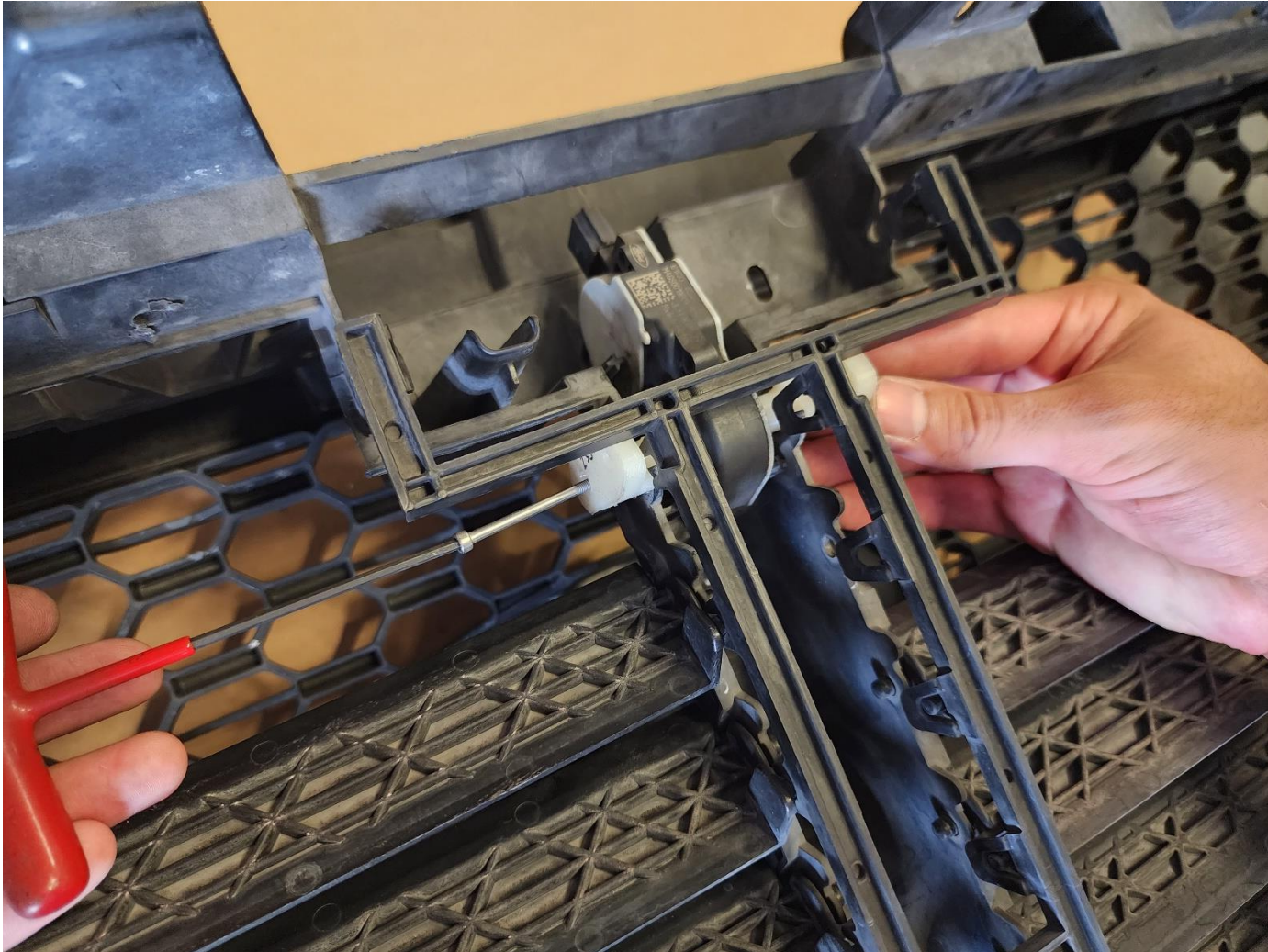
Driver side "D"
splined shaft

VIEW:
REAR OF AGS SHUTTERS

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AGS Simulator

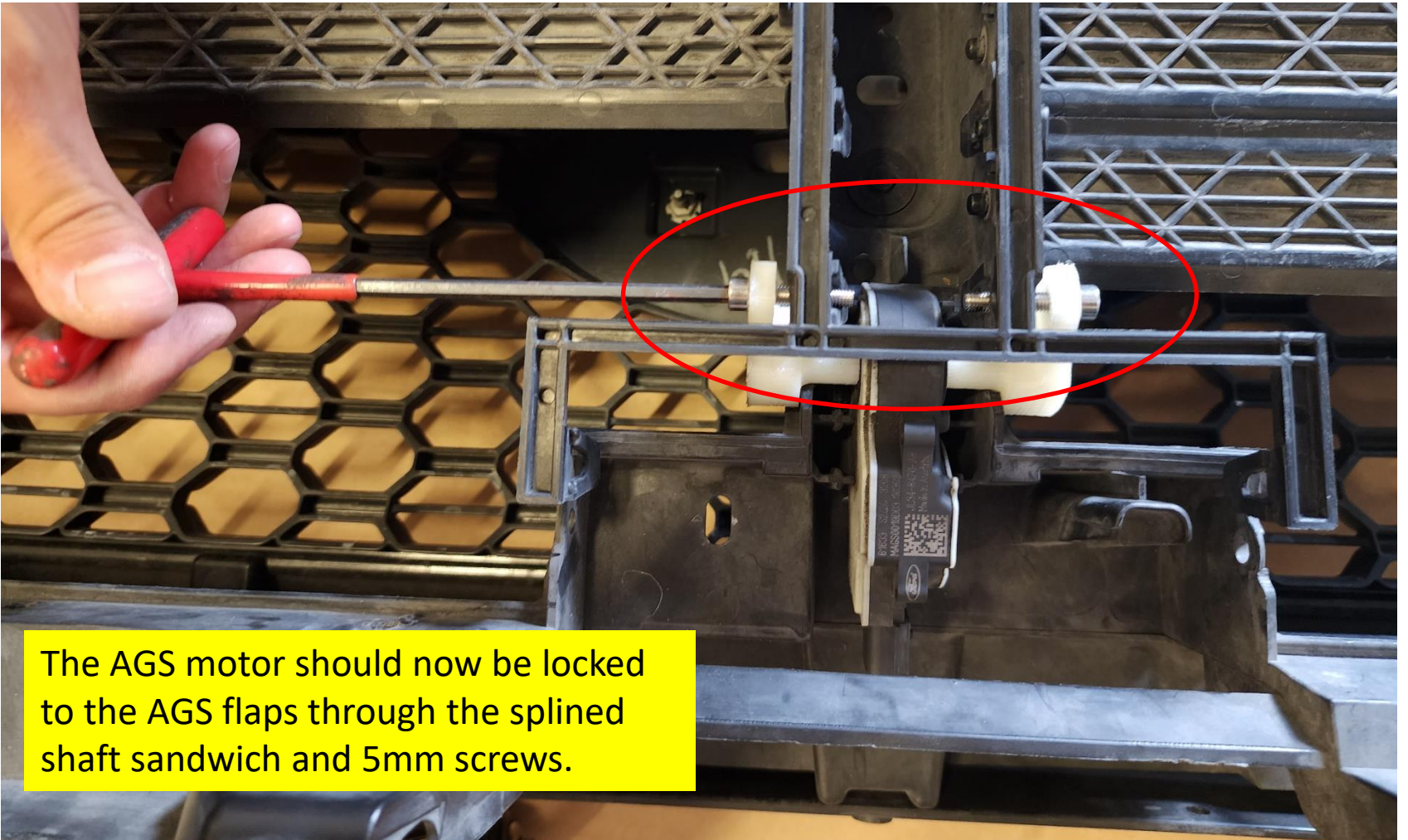
Use Allen key to fasten the sandwich together, tighten until snug, do not over-torque.



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AGS Simulator

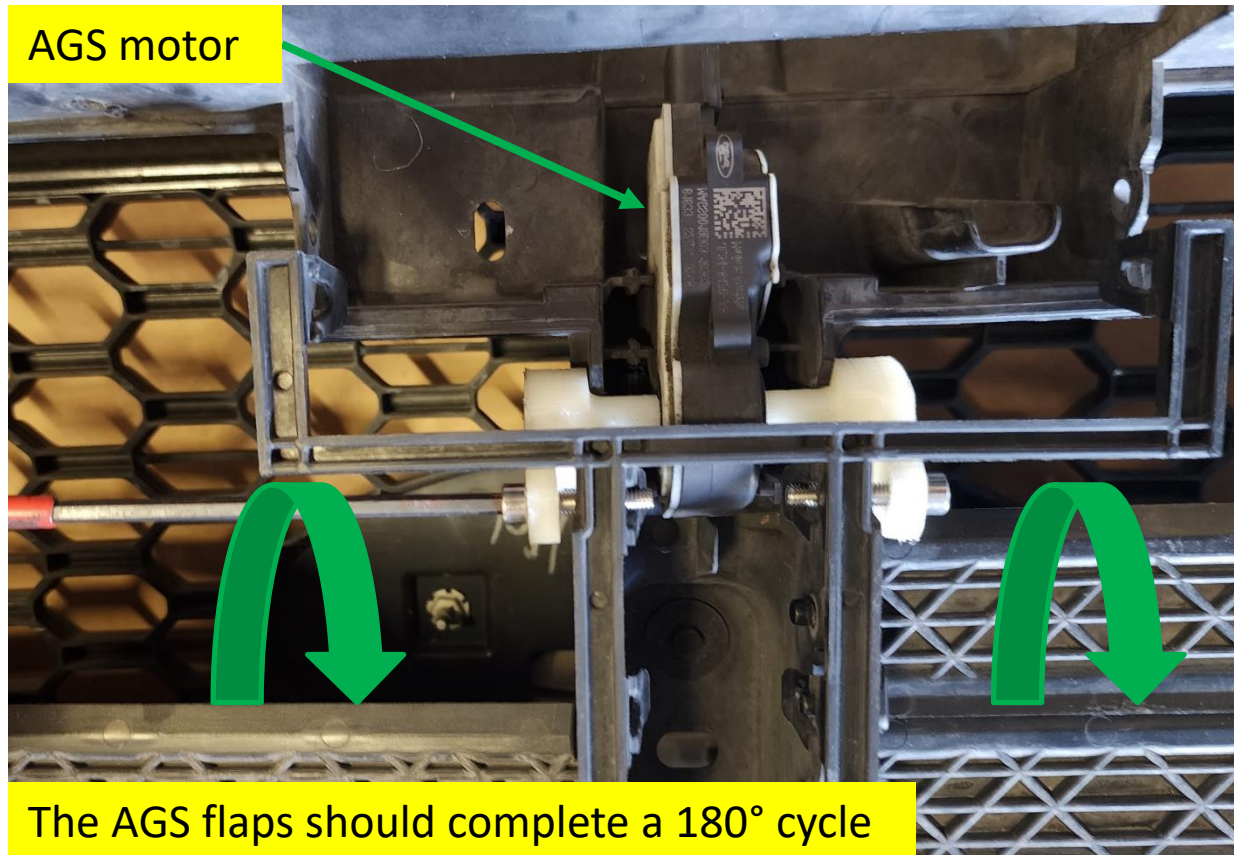
Finalize the assembly by screwing the 5mm bolt into the ears, ensure they bottom out and go through the AGS peg-holes as shown. (You can manually move the AGS to align the peg holes).



The AGS motor should now be locked to the AGS flaps through the splined shaft sandwich and 5mm screws.

AGS Simulator Testing

Once the AGS Simulator install is complete, temporarily reinstall the bumper (no need to fully fasten yet), **reconnect the AGS motor**, turn your car on and allow the AGS system to perform its initiation cycle. If your flaps successfully open and close without interference, the install is successful and the AGS is fully functional.



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Assemble BIG MOUTH Ram Air

From underneath the cowl openings, align the BIG MOUTH ram air intakes with the holes drilled, and fasten with supplied button head screws. For dual kits, use the provided spacer on the lowest outer ear to avoid stressing the Big Mouth.



Grille rear view

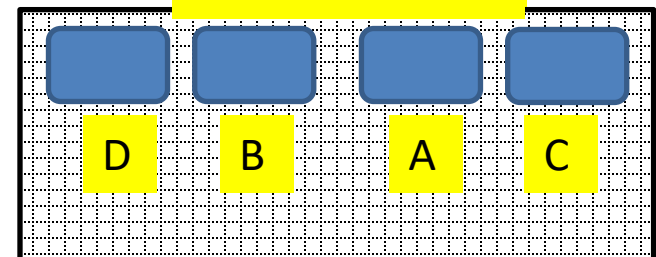


Spacer for dual kits only

QUAD kits have all 4 functional ducts, DUAL kits have ducts A and B only.

BIG MOUTH intakes have letter designations stamped on them. See chart for installation locations.

Grille front view





Finalize

You can make an adjustment to the BIG MOUTHS to ensure they are level. Place bumper on the vehicle however do not fasten it yet, inspect visually for alignment and level of your BIG MOUTH intakes. If you need more adjustment, go back and drill bigger holes in the shroud to allow play room, then tighten as needed. You may add shims between the cowl shroud and the BIG MOUTH fastening points to help with leveling for your particular vehicle.

